REMARKS

In the Office Action, claims 4, 6, 8, 10, 12, 14, 16 and 18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Applicant's Admitted Prior Art (Fig. 7) in view of Tanaka. Claims 3, 7, 11 and 15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Winters in view of Russell (U.S. Pat. No. 2,862,736). Claims 5, 9, 13 and 17 were rejected under 35 U.S.C. §103(a) as being unpatentable over Winters.

The O-ring of the Tanaka patent (U.S. Pat. No. 6,730,385) is a laminate comprising a layer 2 of perfluororubber and a layer 1 of other rubber. However, the perfluororubber is not PTFE (polyterafluoroethylene). Since the chemical formula of the perfluororubber described in the specification of the Tanaka contains oxygen, the perfluororubber is not PTFE. PTFE has a melting point of 327°C. PTFE cannot be fluidized at a temperature below 200°C in the embodiment of the Tanaka patent.

The invention of the Tanaka patent has the features in which the perfluororubber and other rubber are bonded to each other by curing. Since PTFE cannot be cured, it is evident that the perfluororubber of the Tanaka patent does not contain PTFE. In addition, the Tanaka patent exemplifies an O-ring containing perfluororubber. This O-ring will have a low plasma resisting performance.

The Winters patent (U.S. Pat. No. 6,165,313) discloses a plasma seal. However, the plasma seal is a rubber, such as an FKM rubber or the like, covered with PTFE. Accordingly, the whole plasma seal is not made of PTFE. Even if the plasma seal is formed into a rectangular cross section, since the whole plasma seal is not made of PTFE, the plasma seal will be readily deformed when it is subject to pressure.

The Russell patent (U.S. Pat. No. 2,862,736) merely discloses an assembly that prevents an O-ring from being shifted upon reciprocating movement. The invention of the Russell patent does not consider that an O-ring protrudes into a gap due to a difference in a static pressure.

The packing (O-ring) according to the present invention has a function of preventing the seal ring from protruding into a gap due to a vacuum suction in cooperation with the plasma seal. Even if the plasma seal in the assembly of the Winters patent is formed into a rectangular cross section, the assembly cannot prevent the plasma seal from protruding into the gap.

In the present invention, since the plasma seal has an arch cross section, the plasma seal can cause a great reaction force against compression, thereby preventing permanent fatigue.

Based on the foregoing amendments and remarks, it is respectfully submitted that the claims in the present application, as they now stand,

patentably distinguish over the references cited and applied by the Examiner and are, therefore, in condition for allowance. A Notice of Allowance is in order, and such favorable action and reconsideration are respectfully requested.

However, if after reviewing the above amendments and remarks, the Examiner has any questions or comments, he is cordially invited to contact the undersigned attorneys.

Respectfully submitted,

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Date: February 19, 2008
JCH/JLS:crj